DEPARTMENT OF DEFENSE
WASHINGTON HEADQUARTERS SERVICES
WASHINGTON, D.C. 20301-1155

(RE&F-FF)

27 FEB 1991
Revised

MEMORANDUM FOR DIRECTOR, REAL ESTATE AND FACILITIES
DIRECTOR, FEDERAL FACILITIES DIVISION
DIRECTOR, LEASED FACILITIES DIVISION
DIRECTOR, SPACE PLANS AND ACQUISITION DIVISION
DIRECTOR, PROCUREMENT AND CONTRACTS OFFICE

SUBJECT: Guidelines and Procedures for Asbestos Abatement and Removal Control.

The Guidelines and Procedures for Asbestos Abatement and Removal Control have been updated to reflect current methods of operation.

For your convenience a complete copy of the revised February,1991 edition is attached.

The following changes were made in this edition:

Section 15.0, Record Keeping (15.1), has been revised.

Appendix E, Floor Tile Removal, has been revised.

If there are any questions regarding the guide please call the Safety and Occupational Health Office (SOHO) on x33683.

Michael J. Langone

MICHAEL J. LANGONE, Director
Safety and Occupational Health Office

Attachment:
a/s

Issued 3/4/91

GUIDELINES AND PROCEDURES

FOR

ASBESTOS ABATEMENT AND REMOVAL CONTROL

FIRST EDITION JANUARY 1989

REVISED MAY 1989

REVISED DECEMBER 1989

REVISED NOVEMBER 1990

REVISED FEBRUARY 1991

INDEX

APPENDIX

DEPARTMENT OF DEFENSE (DoD)

REAL ESTATE AND FACILITIES DIRECTORATE (RE&FD)

WASHINGTON HEADQUARTERS SERVICES (WHS)

SAFETY AND OCCUPATIONAL HEALTH OFFICE (SOHO)

PURPOSE:

This document sets forth appropriate guidelines and procedures for asbestos abatement in federally owned or leased buildings occupied by the Department of Defense (DoD) throughout the Washington Metropolitan Area (WMA).

APPLICABILITY AND SCOPE:

Where the responsibility for the safety and health of government personnel lies directly with DoD these guidelines and procedures apply.

This compilation of guidelines and procedures is in no way intended to replace, alter or supersede other regulations and standards (e.g., OSHA, EPA, the States of Maryland and Virginia Departments of Health and Mental Hygiene, NIOSH and ANSI), but is designed to enhance the in-house asbestos abatement program. Therefore, it is incumbent upon all contractors and DoD personnel to adhere to Federal, state and local regulations and guidelines that apply to asbestos related work.

While doing asbestos abatement, the Contractor, Sub-contractor, or DoD asbestos abatement workers are subject to on-site inspections by authorized personnel. If found to be in violation of 29 CFR 1910.1001 or any portion(s) of these guidelines, the authorized personnel have the authority to stop the work. The asbestos abatement entity shall cease all work until the violation(s) is or are corrected. Work shall begin immediately after correcting the deficiency, if feasible. Standby time required to remove the violation(s) shall be at the Contractor's expense.

NOTE: All asbestos abatement entities are required to have available (at all times) one complete set of equipment (e.g., respirators and disposable clothing) for entry into the asbestos controlled area for inspection of the asbestos abatement work.

1.0 DEFINITIONS:

1.1 ACM - Asbestos Containing Material.

1.2 Asbestos - The fibrous of asbestos varieties which include chrysotile, amosite, crocidolite, tremolite, anthophyllite and actinolite.

1.3 Asbestos Abatement Entity - Any individual, partnership, company, corporation, DoD agency, union, association, or other business concern with one or more persons involved in any asbestos related activity.

1.4 Asbestos Material - Asbestos or any material containing asbestos.

(a) Friable Asbestos Material - Any material containing more than 1 percent asbestos by weight that hand pressure can crumble, pulverize, or reduce to powder when dry.

(b) Non-Friable Asbestos Material - Asbestos in a matrix which cannot be easily reduced to powder.

1.5 Asbestos Project - Any activity involving the removal, demolition, renovation, or encapsulation of asbestos material, friable or nonfriable.

1.6 Authorized Personnel - Contracting Officer (CO), Contracting Officers Representative (COR) or any Federal regulatory personnel working within their authority and directly associated with the abatement project, e.g., the SOHO or the Certified Industrial Hygienist (CIH).

1.7 Auxiliary Purposes Project - A work activity which does not directly involve an asbestos abatement project, but may, in the process of other jobs (e.g., cable pulling, plumbing, carpentry, sheet metal, etc.) disturb or expose asbestos or ACM.

1.8 Clean Room - An uncontaminated area or room which is a part of the decontamination enclosure system with provisions for storage of street clothes and clean protective equipment.

1.9 Demolition - The wrecking or taking out of any structural member or related component of a facility including mechanical systems, for the stripping of asbestos material, including the related handling operations.

1.10 Emergency Asbestos Project - Any asbestos abatement project that was not planned but resulted from a sudden unexpected event. This includes operations required by non-routine failures of building equipment or systems. In such cases it may not be feasible to apply for a removal permit, see sections 1.21 and 4.2.

1.11 Encapsulate - Coat, bind or resurface walls, ceilings, pipe covering, etc., to prevent friable asbestos from becoming airborne.

1.12 Enclosure - Airtight walls and ceilings constructed around ACM. This requires that signs be posted stating that asbestos materials are behind the enclosure. Building records should note the presence of asbestos to prevent accidental fiber release during remodeling or demolition.

1.13 Equipment Room - A contaminated area which is part of the worker decontamination enclosure system with provisions for storage of contaminated clothing and equipment.

1.14 Facility - Any commercial or industrial building.

1.15 Facility Component - Any pipe, duct, boiler, tank, reactor, turbine, air handling unit, furnace, or structural member in or on a building.

1.16 General Licensing Requirements - No asbestos abatement entity shall engage in any asbestos projects unless it is licensed to do so by the States of Maryland and/or Virginia, or any other Federally recognized licensing authority. Copies of the license(s) shall be provided to the SOHO prior to beginning any asbestos removal. Licensing and all notifications is a prime responsibility of the Contractor.

1.17 HEPA Filtration - High Efficiency Particulate Air (HEPA) filtration found in respirators, vacuums, and negative air exhaust systems. Capable of filtering 0.3 micron particles with 99.97% efficiency.

1.18 HVAC - Heating, Ventilation and Air Conditioning systems.

1.19 License - The permit issued by the State of Maryland-Department of Health and Mental Hygiene-Office of Environmental Programs-Air Management Administration, the State of Virginia-Department of General Services or other acceptable Federally recognized licensing authority which certifies an asbestos abatement entity to engage in asbestos work.

1.20 NESHAP - National Emission Standards for Hazardous Air Pollutants states that advance notice must be filed with the EPA regional office and the state when;

(a) The amount of asbestos in a facility is at least 260 linear feet (80 linear meters on pipes) or,

(b) If at least 160 square feet (15 square meters) of other components are stripped or removed at a facility being renovated.

1.21 Permit - When feasible, written notification is required prior to the start of ACM removal. The permit (as shown in Appendix A) shall be posted in a conspicious location at the job site. A permit is not required for small jobs where ceiling penetrations or single access panels are being done. However, a permit is required where continuous ceiling penetrations or single access panels are part of a larger project. See Section 4.2.

1.22 Remove - To take out asbestos material, friable or non-friable, from any facility.

1.23 Renovation - Altering in any way of one or more facility components.

1.24 Shower Room - A room between the clean room and the equipment room in the worker decontamination enclosure, having hot (warm) and cold running water, controlled by a tap and suitably arranged for complete showering during decontamination. Showers shall be located in all containments unless prior approval is obtained from the Certified Industrial Hygienist (CIH) or the SOHO.

1.25 SOHO - The Safety and Occupational Health Office.

1.26 Strip - The removal of friable asbestos material from a facility or its components.

2.0 WORK PRACTICE AND REMOVAL PROCEDURES:

NOTE: No asbestos related work (removal, penetration, encapsulation, enclosure, glovebag use, etc.) will commence by any entity prior to 4:00 pm Monday thru Friday, except for emergencies. In emergency cases the SOHO or the CIH must be notified immediately. Where feasible any, non-emergency exceptions of this procedure shall have prior mutual approval of the SOHO and the air monitoring firm.

2.1 Area preparation is to include NESHAP Subpart M, 40 CFR 61.

2.1.1 The area to be disturbed or removed must be isolated from the remainder of the building. Barriers between contaminated and uncontaminated areas shall be constructed of 6 mil polyethylene double sheeting secured into place.

2.1.2 Remove all movable objects from the work area. IF feasible, cleaning of contaminated items shall be performed. Cover all non-movable objects in the work area with 6 mil polyethylene sheeting secured in place. Seal all openings between work area and uncontaminated areas including windows, doorways, elevator openings, corridor entrances, drains, ducts, grills, grates, diffusers, electrical outlets and skylights. At a minimum all openings shall be sealed with 6 mil polyethylene sheets secured with 3" duct tape.

2.1.3 Floor covering shall consist of 2 layers of 6 mil polyethylene sheets that will extend up the walls to at least 12 inches and be of such a size to minimize seams. No seams shall be located at wall to floor joints.

2.1.4 Wall sheeting shall consist of 2 layers of 6 mil polyethylene sheets. They shall be installed to minimize seams and shall extend beyond where walls and floors meet by at least 12 inches. No seams shall be located at wall to wall joints.

2.1.5 A worker decontamination enclosure system will consist of a clean room, shower room and equipment room, separated from each other and from the work area by airlocks and accessible through doorways protected with two overlapping 6 mil polyethylene sheets.

2.1.6 Shut down and lock out all HVAC equipment in or passing through the work area. Seal all intake and exhaust openings and any seams in HVAC components with 6 mil polyethylene sheeting securely taped in place.

2.1.7 Caution signs in accordance with OSHA 29 CFR 1910.1001 shall be conspicuously displayed (posted) at all approaches to locations where airborne asbestos fiber levels can be expected to exceed background levels.

3.0 WORKER PROTECTION REQUIREMENTS:

3.1 Training shall be provided by the asbestos abatement entity to all employees who may be required to disturb ACM and to all supervisory personnel who may be involved in the planning, execution, or inspection of asbestos projects.

(a) Training shall consist of an initial course approved by the State of Maryland Department of Health and Mental Hygiene, the State of Virginia, and the SOHO.

(b) Training shall also consist of an annual review or certification course approved by the same organizations as stated in 3.1(a).

(c) Asbestos abatement entity personnel shall be required to pass a written examination to demonstrate familiarity with those issues relevant to the safe performance of asbestos abatement activities. Workers must be provided with certification cards indicating that they have successfully completed and passed an approved training course. The cards should indicate the effective dates of training, identify the training entity, and provide details on the types of respirators for which the individuals have been fit tested and trained to use. It is required that all asbestos workers have cards or proof of certification on their person. An authorized CIH or Government safety officer can require workers to produce proof of certification. Failure to have proof could result in removal from the work site.

3.2 Personal protective equipment and clothing will be supplied to all personnel involved in asbestos related work.

(a) Each employee shall be provided with full body disposable protective clothing impermeable to asbestos fibers, Tyvek or equivalent. Clothing shall consist of headgear, footwear and full body protection properly sized to reduce tearing during body movement. Suits shall be sealed at wrists, neck, and ankles to prevent body contamination.

(b) Gloves, hard hats and safety eyewear shall be available to employees.

(c) Personal protective equipment shall be OSHA approved or recognized by other Federal standards.

3.3 Before an asbestos abatement entity engages in an asbestos project, it will assure the SOHO that they have an adequate and proper respiratory protection program that is in accordance with the requirements of OSHA 29 CFR 1910.1001 and incorporates ANSI Z88.2-1969, Practices for Respiratory Protection.

(a) Respirators must be tested and approved by the National Institute of Occupational Safety and Health (NIOSH) for use in asbestos contaminated atmospheres.

(b) Fitting and fit testing is best be performed during the training or retraining course.

(c) Each employee shall be given an opportunity to try on a variety of respirator styles and sizes and select a respirator for a comfortable fit.

(d) Each employee shall be instructed in the performance of positive and negative pressure fit checks and be able to sucessfully perform them.

(e) Employees shall be provided with the brand name and model number of respirators that they have been fitted for and trained to use. Appropriate recordkeeping should be kept.

(f) No employee or agent shall be permitted in the work area without the required respiratory protection. This requirement shall be strictly enforced by the SOHO, the designated CIH and the asbestos abatement entity.

(g) No personnel with beards, long sideburns or other physical characteristics that interfere with respirator to face seal will be permitted in the work area.

(h) Respirator fit testing shall be conducted by a CIH or other individual equally qualified by virtue of training and experience capable of performing and interpreting the results of the fit testing procedures.

3.4 Annual medical monitoring is required for all personnel involved in asbestos abatement projects. The supervisor may request scheduling through an appropriate clinic, e.g., the Civilian Employee Health Clinic for Military Personnel, the Contractor or the SOHO.

(a) Contractor personnel are not authorized routine medical examinations, surveillance, etc., through Government health services. The Contractor is required to provide the appropriate medical monitoring for his/her employees in accordance with the requirements of OSHA 29 CFR 1910.1001(j).

(b) The Contractor shall submit to the SOHO a list of personnel who have been examined within the preceding year and have been declared physically fit and capable to work while wearing a respirator during asbestos abatement projects. This list must be updated quarterly and provided to all first line supervisors.

(c) Personal hygiene must be assured at all times including entry and exit to the work area; use of showers, and the prohibition of eating, drinking, smoking and chewing in the work area.

4.0 ASBESTOS REMOVAL:

4.1 In addition to work area preparation, all asbestos removal and related work shall comply with the OSHA 29 CFR 1910.1001, 29 CFR 1910.20 and EPA 40 CFR 61 Subpart M.

4.2 Where feasible, prior to the commencement of any asbestos related work the SOHO must be notified in writing, either by submitting daily schedules which are required for small asbestos related projects or by permit when asbestos removal projects fall within the scope of NESHAPS 40 CFR 61.145. The only exception will be emergencies where asbestos abatement and control measures must be taken immediately. In such cases a prompt telephone call to the SOHO on 693-3683 or 84 is required. See Section 1.10.

4.2.1 A simple diagram depicting location of airlocks, existing ventilation systems, microtraps, waste disposal flow, and work direction shall be developed for each removal project. The intent of the diagram is to have a consensus as to how the work is to be completed. This may be represented on the CIH check sheet.

4.3 Any asbestos abatement entity that engages in any asbestos projects that involve more than 260 linear feet (80 linear meters) of pipe covered or coated with ACM or 160 square feet (15 square meters) of ACM used to cover or coat any duct, boiler, tank, air conditioner unit, structure, structural member or structural component shall comply with the following:

(a) Construct barriers to isolate contaminated from uncontaminated areas with 6 mil polyethylene sheeting held securely in place.

(b) Remove all movable objects from the work area. Cleaning of contaminated items shall be performed if necessary and feasible. Cover all non-movable objects in the work area with 6 mil polyethylene sheeting secured in place. Seal all openings between the work area and uncontaminated areas including windows, doorways, elevator openings, corridor entrances, drains, ducts, grills, grates, diffusers, skylights, electrical outlets, etc.

(c) Floor covering shall consist of 2 layers of 6 mil polyethylene sheeting. Floor sheeting shall extend up the walls at least 12 inches and be sized to minimize seams. No seams shall be located at wall to floor joints.

(d) Wall sheeting shall consist of 2 layers of 6 mil polyethylene sheeting. It shall be installed to minimize seams and shall extend beyond where walls and floors meet by at least 12 inches. No seams shall be located at wall to wall joints.

(e) A worker decontamination enclosure system will consist of a clean room, shower room and equipment room, separated from each other and from the work area by airlocks and accessible through doorways protected with 2 overlapping sheets of 6 mil polyethylene.

(f) Shut down and lock out all HVAC equipment in or passing through the abatement work area. Seal all intake and exhaust openings and any seams in system components with 6 mil polyethylene sheeting and secure with tape. Replace all system filters at the completion of the abatement and dispose of old filters as asbestos waste. Decontaminate the interior of ducts as much as possible, when necessary.

(g) Place caution signs in accordance with OSHA 29 CFR 1910.1001(g). Conspicuously post/display at all approaches to locations where airborne fiber levels can be expected to exceed background levels.

(h) Negative pressure ventilation units with HEPA filtration and in sufficient number to provide 1 air change every 15 minutes shall be operated continuously and for the duration of a project. The duration of the abatement project shall be considered from the time the barrier construction is completed until the time that acceptable

final clearance air-monitoring results are obtained. Local exhaust ventilation and dust collection systems shall be designed, constructed, installed and maintained in accordance with the American National Standards Institute Governing the Design and Operation of Local Exhaust Systems, ANSI Z9.2-1971, which is incorporated by reference herein. All HEPA vacuums shall be DOP (Dioctyl Phthalate) tested for leaks on an annual basis.

(i) Only HEPA filtered negative air machines shall be used for exhausting air from contaminated areas. HEPA vacuums may be used for very small containments, however, prior approval from the SOHO and the CIH must be obtained.

(j) Following the abatement, clean-up using HEPA vacuuming and wet cleaning techniques shall be done. Wet cleaning using an amended water solution shall be followed by HEPA vacuuming after surfaces have been allowed to dry. If the final inspection fails, wet cleaning and vacuuming shall be repeated, at 24 hour intervals, until no visible residue is observed in the work area.

(k) Just prior to actual removal, all ACM that is to be removed or cut into, shall be sprayed with the following mixture of water and surfactant until saturated:

1 fluid ounce of surfactant to 5 gallons of water.

(l) All ACM shall be wet down with an amended water solution before being placed into containers for disposal. The wet material or substrate waste shall be placed in sealable 6-mil polyethylene bags and then placed into air tight metal or fiber drums with locking-ring tops.

(m) All containers shall be labeled in accordance with OSHA 29 CFR 1910.1001(g) or EPA 40 CFR 61.152.

4.4 Any area smaller than the NESHAP definitions (260 linear feet or 160 square feet) shall follow applicable EPA and OSHA guidance and recommendations.

5.0 REMOVAL:

5.1 No asbestos abatement work may begin until the assigned CIH conducts a containment construction inspection and verifies the negative air pressure (static air pressure). The minimum static pressure, 0.015 inches of water, will be determined by an appropriate calibratable measuring instrument. Generally, a magnetic gauge with a scale of 0 to 0.25 or 0.50 inches of water and 0.005 or 0.01 inch graduations will be adequate. This initial containment inspection shall be documented. This document shall be provided to the government upon request.

5.2 All ACM shall be wet down through to the substrate using an amended water solution prior to any removal. Portable fire extinguishers are not to be used to wet down ACM.

5.3 Components shall be removed intact or in large sections whenever possible and carefully lowered to the floor.

5.4 ACM shall be removed in small sections and containerized while wet. At no time shall the material be allowed to accumulate or become dry. Structural components shall be wet down prior to wrapping in polyethylene sheeting for disposal.

5.5 The removed material shall not be dropped or thrown to lower levels. For material located at heights greater than 25 feet, a dust tight, enclosed chute, shall be constructed to transport the material to the container on a lower level. ACM may be lowered to a raised scaffold or containerized at higher levels, and then taken to a lower level. Material located at heights greater than 15 feet shall be lowered through inclined chutes or on scaffolding and containerized for disposal.

5.6 For porous surfaces that have been stripped of ACM a coating of an encapsulating agent shall be applied to securely seal any residual fibers that may be present. When wire brushing is required the surface shall be continually sprayed with a mist during the operation and up to the encapsulation.

5.7 At any time a containment barrier is torn or otherwise damaged, workers will immediately stop all work and repair the damage.

5.8 The work area shall be free of gross contamination before workers exit for breaks or at the end of a workshift.

5.9 When water is not available to supply a decontamination shower, workers should double suit. After HEPA vacuuming gross contamination from the outer suit, remove it and then enter the equipment room of the decontamination chamber. The inner suit will be removed in the clean room along with the respirator. The HEPA vacuum used to remove gross contamination must be in addition to units used for negative (static) pressure. A shower shall be provided within the building if water is not available at the work site.

5.10 ACM or items designated for disposal shall be placed in properly labeled 6-mil polyethylene bags. If the bags are to be placed in fiber or metal drums within the decontamination chamber only one bag is required. If drums are not used, double bagging will be required. No secondary bagging shall be permitted outside the decontamination chamber. All asbestos waste in bags or drums shall be removed from the worksite at the end of the workshift and stored in the proper designated holding area. At no time shall asbestos waste be stored in an operating air handling or mechanical room.

5.11 The CIH or the Industrial Hygienist Technician (IHT) shall perform a final inspection prior to giving the approval for encapsulation or containment demolition and removal. All work must pass a final inspection before any new work can begin.

6.0 ENCAPSULATION:

6.1 Remove loose and hanging ACM.

6.2 Fillers used to plug gaps in existing material shall contain no asbestos, adhere to the substrate, and provide a good base for the encapsulating agent.

6.3 Holes in surfaces shall be sealed prior to encapsulation. Encapsulants shall be applied using only airless spray equipment with adjustable nozzle pressure of between 400 and 1500 pounds per square inch (PSI). Nozzle pressure and tip size will vary, based on manufacturer recommendations for various encapsulants.

6.4 Encapsulated materials shall be marked with signs, labels, color coding, or other system to warn individuals who may be required to disturb the material.

6.5 Encapsulants shall not be solvent-based or utilize a vehicle consisting of hydrocarbons.

7.0 ENCLOSURE:

7.1 Remove loose and hanging ACM. All asbestos shall be encapsulated prior to completing the enclosure.

7.2 Spray all areas of the ACM with encapsulant if it is to be disturbed during the installation of hangers, brackets, etc.

7.3 Use non-asbestos containing substitutes to patch thermal insulation and fireproofing material when required and appropriate.

7.4 Enclosures for ACM's shall be marked with signs, labels, color coding, or other systems that warn individuals who may be required to disturb the enclosure. Note: Acceptable enclosures are normally air tight and of a permanent nature, with the area behind them being inaccessible.

8.0 CEILING PENETRATIONS (DRILLING HOLES):

8.1 All ceiling penetrations shall be performed using a power drill equipped with a HEPA vacuum and a "t-type" PVC attachment.

8.2 Only an EPA approved bridging encapsulant may be used to encapsulate each hole after drilling.

8.3 At a minimum, the drill operator shall wear a half mask respirator approved for protection against asbestos fibers, wear protective clothing during the entire drilling operation and use approved eye protection.

8.4 To prevent unwanted levels of working air samples no other construction related work shall be permitted during hole drilling or while the air pump is running.

8.5 The area directly below the drilling shall be covered with 6 mil polyethylene. Conspicuously placed caution signs shall be used to alert building occupants of the ongoing activity. In corridors signs shall be posted in the general vicinity of the work and on doors when work is being done inside an office.

9.0 ACCESS HOLES AND LIGHT FIXTURE REMOVAL (AREAS LESS THAN 9 SQUARE FEET:

9.1 Access holes, light fixture removal and ceiling work being less than 9 square feet can be done using glovebag techniques with a negative pressure

system. Under no circumstances are glovebags to be taped to the ceiling, the use of a duct jack or small containment is required.

9.2 Workers shall wear protective clothing and approved respiratory protection during glovebag operations. Approved eye protection is also mandatory. Where containments are used normal containment work procedures shall be followed.

9.3 An EPA approved bridging encapsulant shall be used on all exposed edges of ACM. The encapsulant shall be colored different than the existing surfaces.

9.4 When access holes are made in wire mesh and plaster ceilings, the edge of the hole shall be cleaned and encapulated before the wire mesh is removed.

9.5 The containment shall remain in place until final area air samples are taken and approved.

9.6 In performing asbestos work associated with light fixtures, the egg crates should be taken down, cleaned and removed from the area prior to setting up the glovebag operation. All material should be wet down and the bag sealed prior to disengaging the fixture from the ceiling.

10.0 WALL TRACK REMOVAL:

10.1 Construct a two stage containment enclosing both sides of the wall that is to be removed.

10.2 Use a "mini" HEPA filtered negative air pressure vacuum to maintain negative air.

10.3 Remove the wall with minimal disturbance to adjacent areas utilizing wetting techniques.

10.4 Approved containment work procedures including use of protective clothing, wetting material and disposal shall apply.

10.5 Treat all wall material as asbestos waste.

10.6 Decontaminate the containment and encapsulate adjacent areas where the wall was removed.

10.7 No construction work shall be permitted outside the containment area during asbestos related work so as to prevent high fiber levels of working air samples from occurring.

11.0 GLOVEBAG WORK - PIPE AND VALVE INSULATION:

11.1 Wear a fitted approved respirator, disposable Tyvek type coveralls, hood and bootees with minimum clothing underneath for comfort. Use duct tape to ensure that disposable clothing is sealed around wrists, ankles and the neck.

11.2 Test the pipe, valve and fittings to ensure that they are not too hot to work on. Remember that 6 mil polyethylene cannot be used on pipes hotter than about 120 degrees Fahrenheit. Also, the cooler temperature of an amended water solution may rupture the hot pipe.

11.3 In case of a power outage stop work until the power is restored. Power outages should be reported to the building manager.

11.4 Determine the section of pipe that the glovebag will enclose. Wrap a minimum 3" wide piece of duct tape around the pipe where the ends of the glovebag will be attached. This will allow the glovebag to be held in place and reduce the chance of disturbing the pipe when the bag is removed.

11.5 Cut the sides of the bag to get around the pipe or valve to be serviced. 6 mil polyethylene shall be placed under the removal area, extending to at least 3 feet beyond any equipment used for the removal. Any walls or non-movable equipment within 1 foot of the removal area shall be covered with plastic as added protection.

11.6 Put all necessary tools in the tool pouch inside the glovebag, razor knife, bone saw, damp rag, wire snips, etc.

11.7 Attach the glovebag to the work area by tapping the top two flaps together ensuring a good seal across the top of the bag. Fold the top flap over at least 2 times and tape shut. If staples are used to secure the bag, tape after stapling. Leave enough slack at the top of the bag to work fully around the pipe.

11.8 Seal the edges of the glovebag around the pipe where duct tape has already been placed on the pipe. Ensure that the seal is airtight. Smoke tubes should be used to test for leakage.

11.9 Make a small cut in the bag to insert the amended water sprayer nozzle. Tape around the nozzle to obtain a good seal. This opening will also be used for the HEPA vacuum attachment. Each time a hole is made reseal it with duct tape.

11.10 Thoroughly wet the work area inside the glovebag with amended water.

11.11 Place arms inside the gloves of the bag. Carefully remove the asbestos and keep wetting the material as required. This should be a 2 person job, one worker does the removal while the other worker keeps the material wet. During the removal local exhaust ventilation should be provided with a HEPA filtration system.

11.12 When the removal is complete, wipe the exposed pipe with a damp rag to clean the area of all visible debris.

11.13 Wet clean all reusable tools with amended water and place in the tool pouch. Spray the sides of the bag so that all debris collects at the bottom of the bag.

11.14 Thoroughly encapsulate all surfaces within the glovebag with an EPA approved encapsulant or paint sealant.

11.15 Place HEPA vacuum attachment to the bag opening, suck the air out of the bag for a period of 2 to 3 seconds. Tape the access hole.

11.16 Squeeze the bag tightly below the tool pouch. Tape shut with duct tape or a plastic tie.

11.17 Cut the glovebag across the top. Remove tools and immediately immerse them in amended water for a thorough cleaning. All used glovebags and asbestos waste shall be removed from the worksite at the completion of the job.

11.18 Place the glovebag and disposable clothing in a 6 mil yellow asbestos disposal bag, seal and store in a marked sealed drum for final disposal at the landfill. Bags shall be marked in accordance with OSHA and EPA standards.

11.19 If no further work is required use end caps and wet wrap to ensure that all remaining undamaged surfaces of the insulation are sealed.

11.20 While respirators are still on thoroughly HEPA vacuum the work site surfaces and the general area surrounding the site.

11.21 Respirators may be removed at this time and final air testing conducted.

12.0 CABLE PULLING:

12.1 An agency wanting to pull cable shall notify, in writing, the SOHO 14 days prior to the start date. The written request shall include the name of agency, the start and completion dates, the contractor or the subcontractor who will actually pull the cable, the location, drawings which illustrate the point of entry, the proposed cable path, method of cable installation, and the exit location.

12.2 The cable pulling entity shall submit their company name, provide a list of employees who will do the work including proof of training and testing, licensing, and who will conduct the air monitoring.

12.3 Air sampling will be performed by a company with industrial hygiene capabilities. A board certified industrial hygienist will supervise all testing conducted by the respective agency. At a minimum, air monitoring will include an area sample at the point of entry and at the point of exit. A copy of the results of the air sample analysis will be forwarded to SOHO within 48 hours. The Contractor assigned to do the air monitoring will ensure that the standards for air monitoring as stated by the OSHA are complied with.

13.0 WORK ABOVE SUSPENDED AND PERMANENT CEILINGS:

This section is applicable to all electrical, plumbing, communications, and HVAC work done above the ceiling. All work above the ceiling must be considered as asbestos related work until an asbestos assessment has been made by a CIH to determine the presence of asbestos. This assessment may identify the need to use asbestos abatement procedures and air monitoring to be done. As available, building assessments may be obtained from the SOHO.

14.0 AIR SAMPLING/MONITORING:

14.1 The asbestos abatement entity must provide air monitoring for employees during asbestos abatement activities. The air sampling strategy shall consist of pre-sampling, working sampling, and post sampling. Both personal and general area sampling must be included.

14.2 Air monitoring shall be provided in accordance with OSHA 29 CFR 1910.1001 (f), and performed by qualified individuals completely independent of the abatement contractor so as to avoid a possible conflict of interest.

14.3 Samples shall be collected and analyzed in accordance with the procedures specified by NIOSH Method 7400 for asbestos fibers in the air, or an approved equivalent method. Other procedures may be used if the methods and techniques meet consensus use standards.

14.4 Air volumes shall be sufficient to accurately determine fiber concentrations to 0.01 fibers per cubic centimeter of air (f/cc). A minimum air volume of 1000 liters shall be collected, low flow sampler. High volume sampling will be conducted and accepted only on the recommendation of the CIH. Transmission Electron Microscopy (TEM) analyses will be used as necessary.

14.5 An acceptable airborne fiber concentration, as established by clearance air monitoring, shall not exceed 0.01 f/cc for fibers greater than 5 microns in length.

14.6 Air sampling shall be conducted by a CIH, or other air sampling professional, qualified by virtue of education and experience in the procedures for collecting representative air samples for asbestos.

14.7 Asbestos analyses shall be conducted under the direction of a CIH, and the laboratory shall have AIHA certification.

15.0 Recordkeeping:

15.1 All entities engaged to remove and/or dispose of Asbestos Containing Material (ACM) shall maintain records in accordance with all regulations. The SOHO has oversight responsibility and shall have access to all records. Records shall be forwarded to the SOHO upon request.

APPENDIX A

ASBESTOS CONTROL PERMIT

DEPARTMENT OF DEFENSE (DoD)
SAFETY AND OCCUPATIONAL HEALTH OFFICE (SOHO)
TELEPHONE NO. (703) 693-3684

DATE: _____
DoD/SOHO PERMIT NO.: _____
EPA OR STATE NOTICE REQUIRED: YES___ NO ___

SECTION I ORIGINATING OFFICE: (FILL OUT AND FORWARD TO CONTRACTOR)
JOB NO. _____
LOCATION/ROOM NO. _____ BUILDING _____
AGENCY _____ POINT OF CONTACT _____
TELEPHONE NO. _____
FACILITY ASBESTOS CONTROL MANAGER (FACM)
NAME _____ TELEPHONE NO. _____

SECTION II CONTRACTOR: (FILL OUT AND FORWARD TO SOHO)
THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A PERMIT BEFORE THE START OF WORK
COMPANY NAME _____
POINT OF CONTACT _____ TELEPHONE NO. _____
BRIEF DESCRIPTION OF WORK: (ATTACH FLOOR PLAN IF AVAILABLE)
_____
_____
TYPE OF JOB: GLOVE BAG _____ MAJOR REMOVAL _____ PENETRATION _____
ESTIMATED REMOVAL COST _____
START DATE _____ NUMBER OF WORKING DAYS TO COMPLETE THE JOB _____
ASBESTOS CONTAINING MATERIAL (ACM) HAULED BY _____
LANDFILL _____ LANDFILL PERMIT NO. _____
AIR MONITORING FIRM _____
POINT OF CONTACT _____ TELEPHONE NO. _____

SECTION III SOHO: (COMPLETE AND FORWARD TO ORIGINATING OFFICE, FACM, AND CONTRACTOR WHO WILL POST THE JOB SITE)
PERMIT APPROVED
SIGNATURE _____ (SOHO) DATE _____
SIGNATURE _____ (RE&F) DATE _____

SECTION IV CONTRACTOR: (FORWARD THE ORGINIALS OF ALL MONITORING RESULTS, CHECK LISTS, AND LANDFILL RECEIPTS TO THE FACM, AND COPIES TO THE ORIGINATING OFFICE AND THE SOHO, UPON COMPLETION OF THE JOB)

(REVISED 10/90)

APPENDIX B

SHORT DURATION PROJECTS

DEFINITIONS

1. There are three types of work areas:

   a. An enclosure:
   An enclosure is defined as one fully enclosed work site.

   b. A room:
   A room is defined as one room, e.g., an office, conference, computer, waiting, bath, mechanical, etc.

   c. A hall or corridor:
   A hall or corridor work area is defined as within eye sight but not to exceed two hundred linear feet, and twenty linear feet out of eye sight, as at intersecting halls or corridors within the two hundred linear feet.

2. The taking of samples shall be done as follows:

   a. When initial, daily or final samples are taken in a defined area this constitutes one job.

   b. The only samples to be taken are those approved on a daily work request or as approved by prior consent.

   c. In accordance with the appropriate regulations an ordering official will decide when samples are to be taken.

   d. If at anytime a Certified Industrial Hygienist (CIH) believes that additional testing should be conducted, he or she will contact the appropriate ordering official and make a request for additional samples to be taken. Any disparity in the number of samples requested and the number of samples taken will be corrected within twenty-four (24) hours.

   e. There is no limit to the number of penetrations in a defined area.

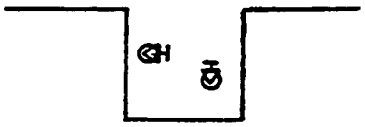
   f. Two defined areas of work can be combined into one work area if they fall within the measurements as described in the definition of a hall or corridor.

   g. Daily reports shall be prepared and submitted for each program office separately.

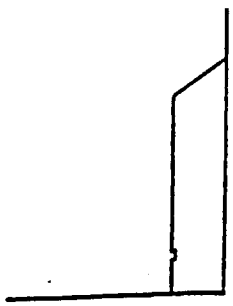
DEFINITIONS IN SCHMATIC FORM

1. Glove bag.
   Pipe line removal.

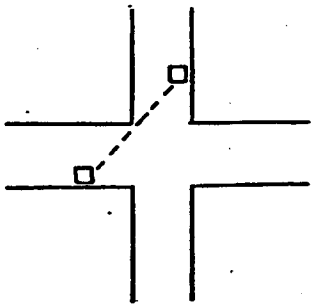
2. Glove bag.
   Removal in a pipe shaft.



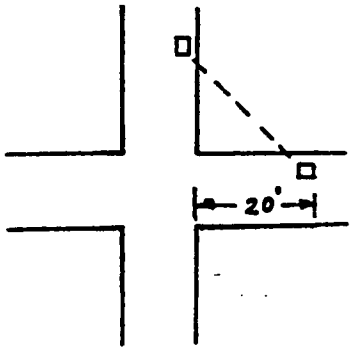
3. Glove bag or single
   stage containment with
   HEPA vacuum.
   Weathermaster unit or units.



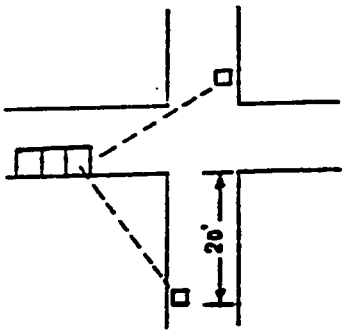
4. Glove bag.
   Line of sight..
   Corridor or hall intersection.



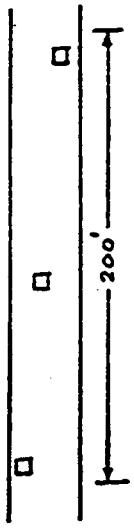
5. Glove bag.
   Out of sight.
   Within 20 linear feet
   of a corridor or hall
   intersection.



6. Glove bag.
   Line of sight.
   Corridor or hall intersection.
   Work performed adjacent to
   a major project.



7. Glove bag.
   Line of sight.
   Within 200 linear feet.
   Corridor or hall.



APPENDIX C

CABLE PULLING

ASBESTOS CONTROL PERMIT

SUBMIT FOR APPROVAL TO
SAFETY AND OCCUPATIONAL HEALTH OFFICE (S0H0)
PENTAGON BUILDING, ROOM NO. 2E165
WASHINGTON, D.C., 20301-1155
(202) 693-3683 or 3684

JOB LOCATION: _____
REQUESTING ORGANIZATION: _____
WORK START DATE: _____ WORK COMPLETION DATE: _____
_____ HAS BEEN RETAINED
(INDUSTRIAL HYGIENIST FIRM)
TO PERFORM ASBESTOS MONITORING SERVICES FOR THE DURATION OF THE JOB.

THE FOLLOWING INFORMATION HAS BEEN SUPPLIED BY THE INDUSTRIAL HYGIENIST FIRM AND IS ATTACHED:

1. A MONITORING PLAN OF ACTION FOR PERSONAL AND AREA SAMPLING, INCLUDING A STATEMENT FROM THE CERTIFIED INDUSTRIAL HYGIENIST (CIH) THAT HE/SHE HAS WALKED THE JOB AND IS FAMILIAR WITH THE SCOPE OF WORK.
2. WORK REQUIREMENTS FOR DEALING WITH ASBESTOS.
3. EMERGENCY PROCEDURES.

THE FOLLOWING INFORMATION WILL BE PROVIDED BY THE INDUSTRIAL HYGIENIST FIRM AS REQUIRED:

1. MONITORING DATA WITHIN 24 HOURS FROM THE COLLECTION OF SAMPLES.
2. NOTICE WHEN MONITORING IS NOT REQUIRED.
3. ADVISE THE SOHO IMMEDIATELY OF ANY PROBLEMS THAT MIGHT ARISE DURING THE JOB.

A COPY OF THE ASBESTOS CONTROL PERMIT WILL BE POSTED AT THE JOB SITE.

IF MONITORING IS NOT REQUIRED THE ASBESTOS CONTROL PERMIT WILL BE SO NOTED.

POINTS OF CONTACT:

REQUESTING ORGANIZATION:	NAME	_____	TELEPHONE NO.	_____
CABLE PULLING COMPANY:	NAME	_____	TELEPHONE NO.	_____
INDUSTRIAL HYGIENIST FIRM:	NAME	_____	TELEPHONE NO.	_____
CIH:	NAME	_____	TELEPHONE NO.	_____

WORK WILL NOT BEGIN UNTIL THE ASBESTOS CONTROL PERMIT IS SIGNED AND DATED BY AN OFFICIAL OF THE SOHO:

APPROVED:
SIGNATURE: _____ TITLE: _____
DATE: _____

FORWARD A COPY OF THE APPROVED ASBESTOS CONTROL PERMIT TO THE APPROPRIATE FACILITIES ASBESTOS CONTROL MANAGER (FACM).

(REVISED 8/90)

APPENDIX D

WIRING

1. All wiring, including but not limited to, power, communication, fire alarm, control, and computer cable shall be put into approved raceways in accordance with Article 3 of the National Electric Code.

The table on page twenty one (21) outlines this requirement.

2. All exposed wiring whether concealed or not, must be adequately supported to prevent damage to the wire, ceiling, or to create a hazard.

3. With the exception of building maintenance, extension cords shall not exceed twelve (12) feet, and shall not be used in lieu of permanent wiring.

4. All computer cables shall be imprinted, and labeled at the point of entry, termination, and at floor, wall, and ceiling penetrations.

5. When a system becomes obsolete, or is being replaced, all unused cable is to be removed, not abandoned.

6. The originating office will maintain a record of all wiring routes.

TABLE

TYPE OF CIRCUIT	WIRING METHOD	CODE REFERENCE
Power or lighting	* Approved raceway	Chapter 3
Class 1 remote control, signaling, and computer (concealed and not concealed)	* Approved raceway	Article 725-14
Class 2 or 3 remote control, signaling and computer (concealed)	* Approved raceway or types CL2P and CL3P cable	Article 725-38 (b) (1)
Class 2 or 3 remote control, signaling, and computer (not-concealed)	Approved raceway or types CL2, CL3 or PLTC cables	Article 725-38 (b) (1)
Fire alarm and emergency communication (concealed and not concealed)	* Approved raceway	PBS 5900.2C Chapter 2 Part 6 Paragraph 57
Communication (concealed)	* Approved raceway or type CMP cable	Article 800-3 (b) (3)
Communication (not-concealed)	Approved raceway or type CM cable	Article 800-3 (b) (1)
Fiber optic (concealed)	* Approved raceways or type OFCP or OFNP cable	Article 770-6 (c)
Fiber optic (not-concealed)	Approved raceway or type OFC or OFN cable	Article 770-6 (a)
Television, video, or radio coax (concealed)	* Approved raceway or type CATVP cable	Article 820-15 (c)
Television, video or radio coax (not-concealed)	Approved raceway type CATV cable	Article 820-15 (a)

* Approved raceways for installation in ducts and plenums used for environmental air are outlined in Article 300-22(b) of the NEC and include; type MI cable, type MC cable (without an overall nonmetallic covering), electrical metallic tubing, flexible metallic tubing, intermediate metal conduit, or rigid metal conduit.

APPENDIX E

FLOOR TILE REMOVAL

This appendix applies to all occupants that change, or cause to have changed, floor covering of any type, for any reason, that could adversely effect the environment by disturbing Asbestos Containing Material (ACM).

1. During repair and alteration work, floor tiles containing asbestos shall not be covered by non-asbestos vinyl tiles, pre-glued carpet tiles, or wall to wall carpeting without the prior approval of the Safety and Occupational Health Office (SOHO).

2. Where asbestos containing tiles are covered by a layer of non-asbestos vinyl tiles, pre-glued carpet tiles, or wall to wall carpeting, the removal of same will be considered an asbestos abatement project.

3. An abbreviated asbestos abatement program can be used with prior approval of the Safety and Occupational Health Office (SOHO). This includes containment design, removal, cleaning methods, and monitoring techniques.

4. The SOHO, will grant approval to cover floor tiles containing ACM based on the following:

   a. Loose tiles are removed and/or replaced.
   b. Floor is thoroughly cleaned.
   c. Encapsulate if needed.
   d. The new rug or tile installation covers the old flooring in its entirety.
   e. The Facility Asbestos Control Manager (FACM) is notified of such installations. All records showing those areas where Asbestos Containing Material (ACM) has been covered over shall be maintained in the office of the FACM.

APPENDIX F

ROOF

Because of the likelihood of asbestos being found in roofing material, all roof jobs shall be considered as an asbestos abatement project.

1. An asbestos assessment of the material must be made before any work is done.

2. Core cuts will be made in the roof. Each cut will be taken at different locations to provide a good cross section of the roofs make-up.

3. Coring will be done with the use of a HEPA vacuum closed containment device.

4. A compatible permanent repair shall be made after each cut.

5. The core samples shall be bagged, sealed, and sent to a laboratory for analysis. Samples containing more then one per cent asbestos will be supported by an asbestos abatement program.

6. The results of the analysis will determine the level of protection that will be needed.

7. If asbestos is identified in the roofing material an asbestos permit will be required.

8. Abatement procedures will be prepared by a Board Certified Industrial Hygienist if asbestos is found.

9. When work is being done during normal working hours asbestos containing materials will not be transported through the facility or over the grounds. Disposal will be done during other then normal working hours.

APPENDIX G

DISTURBED AND/OR SUSPECT ASBESTOS CONTAINING MATERIAL

When known Asbestos Containing Material (ACM) is disturbed and abandoned, or suspect ACM is found, the following procedure will be initiated.

The finder shall immediately inform the Safety and Occupational Health Office (SOHO), who in turn will advise the building Facility Asbestos Control Manager (FACM).

The SOHO will then:

- Inspect the area.
- If necessary take air samples.
- Determine if the occupants should be evacuated.
- Take bulk samples and have analyzed.
- Verbally and in writing, advise the agency/organization using the area of their responsibility to identify the party or parties responsible for disturbing the ACM.
- If attempts to identify the responsible party or parties fails, enlist the help of the Defense Protective Service (DPS).
- If the disturbance of ACM is directly related to work done by an agency/ organization in their occupied space, or in a common use area, they will be held liable for all costs incurred to correct the problem.
- Create and maintain a file of the incident which will be turned over to the FACM when the area has been deemed safe, and the file is closed.

The SOHO shall be responsible for the inspection and enforcement of this procedure.